MEETING OF
ADVISORY COMMITTEE ON WATER INFORMATION'S (ACWI'S)
SUBCOMMITTEE ON HYDROLOGY (SOH)

January 27, 2005

Room 7234, NASSIF Building
Federal Highway Administration Offices
400 Seventh Street SW, Washington, D.C.

AGENDA

1. Welcome and Introductions
2. Review and Approval of Agenda
3. Approval of Minutes from October 14, 2004 Meeting
4. Action Items from October 14, 2004 Meeting
5. Hydrologic Frequency Analysis Work Group Update
6. Satellite Telemetry Work Group Update
7. NOAA's Annual Stakeholder Forum
8. Hydrologic Modeling Work Group Update
9. Announcements and Business Reports from Participants
10. Other Business
11. Plans for April and July Meetings
12. Adjournment

SUMMARY OF MEETING

PARTICIPATING

Don Woodward, American Forests
Bill Parrish, Association of State Floodplain Managers (ASFM)
Will Thomas, ASFM
Martin Becker, Defenders of Property Rights (DPR)
Douglas Bellomo, Federal Emergency Management Agency (FEMA) (**doug.bellomo@dhs.gov**; 202/646- 2903)
Sam Lin, Federal Energy Regulatory Commission (FERC)
Joe Krolak, Federal Highway Administration (FHWA)
Jon Werner, Natural Resources Conservation Services (NRCS)
Douglas James, National Science Foundation (NFS)

Tom Donaldson, National Weather Service (NWS)
Stan Brua, US Army Corps of Engineers (USACE) (**stan.a.brua@usace.army.mil**; 410/962-4894)
Jeff Harris, USACE
Jerry Webb, USACE
David Wells, US Environmental Protection Agency (EPA)
Ernest Dreyer, US Geological Survey (USGS)
Douglas Glysson, USGS (*by phone hookup*)
Phil Turnipseed, USGS
Steve Glasser, USDA Forest Service (FS)
Chris Knopp, FS
Kay Metcalf, USDC National Oceanic and Atmospheric Administration (NOAA)
Colin W. Voigt, USDI Bureau of Land Management (BLM)
Ken Bullard, USDI Bureau of Reclamation (BOR)
Don Frevert, BOR

(Note: A total of 23 participated - 22 in person and one by conference call; email addresses and phone nos. listed above are only for those first time attendees or new addresses for previous attendees; Phone call in #202-366-3920, Code #1857)

MEETING HIGHLIGHTS

Don Frevert called the meeting to order at 9:30 a.m.

1. Welcome and Introductions

There were 23 participants representing 15 member organizations and NOAA.

2. Review and Approval of Agenda

The order of original meeting agenda was adjusted and approved as listed above.

3. Approval of Minutes from October 14, 2004 Meeting

The minutes of the October 14, 2004 subcommittee meeting have been posted on the subcommittee's website below. The minutes of the October 14, 2004 meeting were approved.

http://water.usgs.gov/wicp/acwi/hydrology/minutes/FinalSOH_October-142004.pdf

4. Action Items from July 15, 2004 Meeting

Action: Don Frevert welcomed aboard the new primary representative Doug Bellomo with FEMA.

Action: The meeting participants entered the FHWA building by preconfirming their attendance with Joe Krolak.

5. Hydrologic Frequency Analysis Work Group (HFAWG) Update

Will Thomas reported that the HFAWG meeting was held on January 26, 2005 and the nature of this meeting included the following items:

- Guidance on Regulated Flood Frequency Analysis
- Scanning Bulletin 17B References
- Post-Flood Data Collection
- Needed Research in Flood Frequency Analysis
- Next Meeting

The minutes of this meeting is provided in Attachment I.

Action: Don Woodward volunteered to prepare a draft statement for the Subcommittee at the next meeting on hydrology that would encourage greater coordination among federal agencies to identify the types of data collection needing more emphasis such as flood damages and the types and frequency of data needed in real time, and suggest improved approaches for making the data available to the public through published reports and the internet.

6. Satellite Telemetry Work Group Update

Ernest Dreyer, the chairman of the Satellite Telemetry Interagency Working Group (STIWG), reported that their document supporting the need for a back up system is being prepared, but is not yet completed. Ernest introduced Stan Brua of the Corps of Engineers who is the future chair of the work group. There is also some concern about funding for the primary system. Support from end users is encouraged.

Kay Metcalf reported that NOAA is considering alternatives in the way that the GOES DCS Program is managed and operated. NOAA has put out a "Request for Information" (RFI) to the business community, soliciting suggestions for potential operating scenarios. NOAA has explicitly stated that no contract will result from this specific RFI. There is no explicit funding in NOAA for the GOES DCS program, and funding is always an issue. NOAA is looking for suggestions for solving that funding dilemma.

Kay Metcalf also asked if agencies participating in the Subcommittee on Hydrology meeting would be willing to post an announcement concerning the termination of the NIST time code through the NOAA GOES satellite. NOAA has been announcing this termination for over 2 years. When the service was terminated in January, as announced, NOAA received calls from several power companies who use the service. The termination affected the entire power grid on the East Coast. Since the broadcast is a "blind" broadcast, NOAA has no way of identifying specific users, and would like to reach as wide an audience as possible before discontinuing the service permanently.

7. NOAA's Annual Stakeholder Forum

Don Frevert stated the information of NOAA's Annual Stakeholder Forum of 3/2/05 provided by NWS Geoff Bonnin's email of 1/26/05 (see the details in Attachment II).

8. Hydrologic Modeling Work Group Update

Don Frevert reported that the work group held a conference call on November 29 to discuss plans for the April, 2006 Federal Interagency Hydrologic Modeling and Sedimentation Conference. In addition to the work group members, several members of the Sedimentation Subcommittee participated as did the joint conference chair - Doug Glysson. The group discussed response to the call for papers, plans for the technical program, short courses, poster sessions, field trips, the proceedings and registration issues. Abstracts for the conference are due April 15, 2005.

Doug Glysson reported that the conference organizing committee (composed of members of the Hydrologic Modeling Work Group and the Subcommittee on Sedimentation) will meet at the Silver Legacy Hotel in Reno from April 12 to April 14, 2005. The group will discuss, among other things, the budget for the conference, setting registration fees and general logistic issues. A commercial exhibit hall will be set up and Doug will be the contact for that.

It was agreed that the next SOH meeting will be held in Reno on Tuesday, April 12th at 9:30 am PST, 12:30 PM EST. Members are encouraged to attend if their schedule permits, but a call in number will be available. A block of rooms has been guaranteed at the Silver Legacy at the government rate until March 18th. Those attending should give the code FISC 405 when reserving their rooms.

Action: Don Frevert will set up a call in number for the SOH meeting on April 12th.

Action: All SOH members will continue to distribute the call for papers and generally promote the conference within their organizations.

9. Announcements and Business Reports from Attendees

Bureau of Reclamation

Don Frevert reported that Commissioner John Keys will be staying on in the second Bush administration. Assistant Secretary for Water and Science Bennett Raley resigned in early January and Deputy Assistant Secretary Tom Weimer is acting. Secretary Norton will be staying on.

US Army Corps of Engineers

Jerry Webb reported that USACE projects especially in the Ohio River Basin have experienced significant rainfall over recent weeks and that many projects have experienced record pools.

USACE is in the process of initiating a nationwide portfolio risk assessment for dam safety. The program is expected to take at least two years to complete. The first year will focus on training in-house

assessment teams and performing portfolio analysis for projects in Great lakes and Ohio River Division and Southwestern Division.

USACE is also initiating a new comprehensive watershed approach which represents a change from thinking first, about *individual projects* within a given watershed, to considering *the overall watershed first*, and collaboratively identifying and prioritizing problems and opportunities**.** In particular there is much emphasis on linking riverine and coastal considerations into a comprehensive study approach.

Forest Service

Chris Knopp reported that the Forest Service is heavily involved with instream flow issues – especially with respect to annual hydrographs. The subcommittee could help by providing reviews if member organizations are interested.

Steve Glasser reported that the Forest Service could supply a list of vendors who might be willing to participate in the 2006 Sedimentation and Hydrologic Modeling Conference. The Forest Service is launching a full fledged groundwater program and is also recruiting new hydrologists. The Forest Service will be observing its 100th anniversary on Tuesday, February 1st.

National Science Foundation

Douglas James had no new developments to report.

FEMA

Doug Bellomo reported below:

- FEMA's Multi-Year Hazard Identification Plan (MHIP) was released in November 2004. It shows (by county) when and where FEMA plans to study. It also articulates general standards for the flood hazard data. The comment period on the document will end in January, and a new version will be released in the Spring of 2005.
- FEMA received $200m in map modernization money for FY05. Funding is still somewhere at DHS. Program hopes to have it soon and will quickly begin distribution to Regional offices.
- This year FEMA plans to update its Guidelines and Specifications for flood hazard mapping. Included in the update will be incorporation of recently released guidelines on coastal flood hazard identification processes (Pacific) and recommended changes to Atlantic and Gulf guidelines. Other areas of revision will likely include levees.
- Mudflow issues have surfaced given recent events in California. FEMA is being asked to articulate it's position on identifying this hazard, how it can be mitigated against, and what insurance mechanisms are in place (or could be put in place).

American Forests

Don Woodward had no new developments to report.

NRCS

Jon Werner reported below:

- NRCS reorganization plan for technology development and support is implemented and staffing is underway. Three national centers have been established; Greensborough, NC, Ft. Worth, TX and Portland, OR. At the Portland Office, West National Technology Support Center (WNTSC) a national team is hosted that has overall leadership for Water Quality and Water Quantity for the agency. Mr. Shaun McKinney recently from the Forest Service, 503 273-2400, or shaun.mckinney@usda.gov, is the new team leader.

- The NRCS Snow Survey and Water Supply Forecasting Program streamflow forecasting staff is implementing in cooperation with USGS (George Leavesly, Denver, CO), ARS (Dr Laj Ahuja, GPSR, Ft. Collins, CO) and the NRCS, ARS, USGS Object Modeling System at Ft Collins, CO, the USGS PRMS (Precipitation Runoff Modeling System) in western watersheds to add additional modeled streamflow information. The NRCS has traditionally provided only a regression-based analysis of seasonal volume streamflow.

USDI BLM

Colin Voigt had no new developments to report.

Association of State Floodplain Managers (ASFPM)

Will Thomas reported that ASFPM will be holding their annual national conference of floodplain managers in Madison, Wisconsin on June 12-17, 2005. About 160 abstracts have been accepted and about 20 workshops are scheduled at the beginning and ending of the conference. There will be entire sessions devoted to describing the Map Modernization Program of FEMA.

US Environmental Protection Agency (EPA)

David Wells reported below:

- EPA's Office of Water is working with the State of Minnesota to estimate nutrient concentrations in several watersheds and model the associated stream biology.

- The EPA Beach program is also working with the States to map the locations of public beaches and determine where the States are monitoring for bacteria along their beaches.

USGS

Phil Turnipseed reported the USGS Water Resources Discipline Budget as below:

- The National Streamflow Information Program (NSIP) was reduced by about 5% in FY05 as compared to FY04. FY04 funding was $14,179K; FY05 funding is $13, 814K.

- Most all the water programs were reduced by about 5%.

- USGS will receive a little more than $300K from NOAA in FY05 for use related to the Integrated and Sustained Ocean Observing System (IOOS). The majority of the funds will be used to upgrade DCPs at gages that are used for NWS forecast locations from 100 baud radios to 300 baud radios.

- The President will release the FY06 proposed budget shortly. We can't release any specifics but it is expected that the funding for streamgages will be flat.

- The USGS will be participating in the Annual Assoc of State Flood Plain Managers (ASFPM) conference to be held June 11-17. Chip Groat will be one of the keynote speakers. The USGS will put on a 3 hour workshop on USGS products, tools, and methods of interest to floodplain managers.

- The USGS is proposing a single FY07 budget initiative that will focus on Natural Hazards including volcanoes, earthquakes, landslides, and floods. If this initiative is approved by OMB, funded by congress, and signed by the President, we hope that it will provide additional funding for streamgages.

Phil also provided the information of Congressional Action on the FY 2005 Budget (see Attachment IV).

National Weather Service

Tom Donaldson reported that the USGS/NOAA Memorandum of Understanding was completed and ready for signatures. There will be a ceremonial signing of the document during the Forecasting Environmental Changes conference 4 February 2005. This MOU is a standing document that has been in force for over 20 years. It is renewed every 5 years, and this is the current renewal.

Tom also reported that the NWS Advanced Hydrologic Prediction Service (AHPS) was not fully funded for FY05. The funding level is $4,000,000, approximately two thirds of what it has been the past two years. The impact this has on the NWS Hydrology Program Modernization is to lengthen the time for completion from 10 years to 12-15 years.

There was funding in the budget again this year for the North Carolina project. This is the project to remap the floodplain and develop inundation maps for flood forecasts. It is a cooperative project between the State, USGS, Corps of Engineers, FEMA and the NWS. The results of this effort will be used as a model for other areas of the country in developing flood inundation mapping.

Glenn Austin, the full time member of this committee, is on temporary assignment to develop the Digital Services process for the NWS. NWS has just recently begun delivering three products, maximum temperature, minimum temperature, and 12 hour probability of precipitation, in a digital format. That data is being transmitted both graphically and in XML. One future product that is being developed for digital availability that is of interest to this group is the Probabilistic QPF. That may be available within the next year.

After the meeting Tom Donaldson also provided the message of 1/28/05 from the Under Secretary pertaining to NOAA Tsunami Update (see Attachment V).

Defenders of Property Rights

Martin Becker had no new developments to report.

FERC

Sam Lin reported below:

1. Three broad levels of risk analysis are commonly used as technical and management tools in the engineering community. These include subjective risk analysis, index-based risk analysis, and quantitative risk analysis. To date, FERC has applied only the first two of these in assessing the overall risks of a dam's safety and security. Currently, FERC is still developing a quantitative risk analysis methodology for risk-enhanced decision support so that dam safety improvements can be evaluated and prioritized.

- The subjective risk analysis is dependent on quality-based engineering judgment to estimate risk consequences. For example, since last year FERC has employed the Potential Failure Mode Analysis (PFMA) methodology as a dam safety evaluation tool. Failure modes and scenarios are identified and their occurrence's likelihoods and consequences are qualitatively estimated to enhance dam safety inspection and dam performance monitoring for safety improvement.

- The index-based risk analysis combines quantitative measures and rank scores to determine relative risk rating for critical risk items. For instance, FERC has helped develop and institute the so-called "Dam Assessment Matrix for Security and Vulnerability Risk" (DAMSVR) methodology to evaluate a dam's security risks for individual critical assets.

- The quantitative risk analysis is quantifying engineering judgment to estimate a comparative risk based on sampling data as needed. This risk analysis methodology is more scientific, less subjective than either of the other two methodologies. FERC is in the process of laying out its approach to using quantitative risk analysis, evaluation and assessment to assist in making dam safety decisions as needed.

2. This week, FERC held its first workshop in quantitative risk analysis and a number of dam safety engineers attended the training. FERC will require that all FERC dam safety engineers be trained in quantitative risk analysis. The workshop was instructed by Professor David S. Bowles and Dr. Marty McCann at the campus of Utah State University. The scope of the course included dam safety risk analysis for individual dams and portfolios of dams.

3. Mr. Bruce Muller with the Bureau of Reclamation (BOR) made a presentation on October 14, 2004 at FERC on the topic, "The Road to a Risk-Based Dam Safety Decision Process." FERC will meet periodically with the BOR and the Corps of Engineers in order to keep up with what these agencies are doing and to collaborate with them on the subject of quantitative risk analysis for more comprehensive dam safety improvement decision-making.

FHWA

Joe Krolak reported that:

- 90% percent of all bridge failures have H&H component, so having up-to-date hydrologic data and practice is of interest to FHWA. I-10 replacement estimated at $300 million. Emergency relief funds are still quite significant.

- FHWA working with AASHTO to fund rainfall studies for State DOTs. Possibly looking at a Pooled Fund to conduct studies.

- Hydrology areas of interest and concern to State DOTs and FHWA:
  -- Lower return period events (as a result of fish passage, stream restoration, storm water, and other projects)
  -- Coastal hydrology and issues.

National Hydrologic Warning Council

Don Frevert reported for Gene Stallings that the National Hydrologic Warning Council (NHWC) is awaiting final paperwork approval documenting the benefits associated with the USGS Stream Gaging Network. The NHWC will be leading the effort with David Ford, Associates as another major player.

10. Other Business

Don Frevert reported that ASCE Watershed Management conference will be held for July 19-22 in Williamsburg, VA.

11. Plans for April and July Meetings

The SOH next meeting was scheduled for 12:30 pm EST, Tuesday, April 12 in Reno. The Attachment III message was from Doug Glysson for information about this meeting - especially hotel reservations, etc. For those who can't make it to Reno, Don Frevert will be sending out call in information in advance of the meeting.

The July meeting was scheduled for 1:00 pm EST, July 18 in Washington, D.C. The meeting will be held at Room 3M-3 in the FERC building, 888 First Street, N.E., Washington, D.C. 20426, near by the Metro Union Station.

12. Adjournment

The meeting was adjourned at 12:00 p.m. EST.

Attachment I. Minutes of the Hydrologic Frequency Analysis Work Group Meeting on 1/26/05

Minutes of the Hydrologic Frequency Analysis Work Group
3601 Eisenhower Ave., Alexandria, Virginia
January 26, 2005

The Hydrologic Analysis Frequency Work Group (HFAWG) met at the office of Michael Baker, Jr. on January 26, 2005. Eleven people attended in person and two by teleconference. The following topics were discussed.

Guidance on Regulated Flood Frequency Analysis

The purpose of this report is to describe several methods for regulated flood frequency analysis, to describe the data needed, the applicability, limitations and assumptions, and to provide examples of their application. Those members of the Task Group who have not sent Rocky Durrans a writeup were encouraged to do so. The objective is to have a complete draft before the July 2005 HFAWG meeting.

Scanning Bulletin 17B References

The USGS has scanned all Bulletin 17B references for which it is feasible. Large textbooks, handbooks and mathematical tables were not scanned. All non copyrighted papers (17 in total) have been uploaded to http://water.usgs.gov/osw/bulletin17b/bulletin_17B.html. ASCE has granted permission to upload three references and AGU has granted permission to upload seven papers. Each organization provided guidance on the standard credit line for each citation. There are only 6-7 more references that are feasible to scan. Will Thomas will try to obtain permission to post these references on the above web site.

The work group discussed the option of scanning other papers published since 1982 that are relevant to and supplement Bulletin 17B procedures. The decision was made NOT to scan these more recent references because it would be difficult to determine the most relevant references and would give the false impression that these references are endorsed by the HFAWG. However, it was decided to summarize recent research papers that are pertinent to improving or enhancing methods in Bulletin 17B and to organize these papers by topic such as low outlier detection, historical data adjustment, or generalized skew estimation. Jery Stedinger, Cornell University, has previously volunteered to do this work and was asked to coordinate this effort.

Post-Flood Data Collection

Bill Kirby (USGS), Jeff Harris (USACE), Mike Eiffe (TVA), and Ken Bullard (BOR) each discussed data collection and analysis activities of their agency after a major flood. We discussed the role our work group should take in coordinating data collection activities such as identifying the type of data that should be collected, the format of data reports, and protocol for making the data available to the public. Don Woodward volunteered to prepare a draft statement for the Subcommittee on Hydrology that would encourage greater coordination among Federal agencies, identify the types of data collection needing more emphasis such as flood damages, the types and frequency of data needed in real time, and

suggest improved approaches for making the data available to the public through published reports and the internet. This draft statement will be submitted to the Subcommittee for their consideration and review at the April 2005 meeting.

Needed Research in Flood Frequency Analysis

Rick McCuen, University of Maryland, suggested that the HFAWG prepare a paper on needed research in flood frequency analysis to encourage meaningful research within academia. Jery Stedinger, Cornell University, suggested that we should evaluate recently completed research that may be applicable to revising Bulletin 17B. Jery believes that recently completed research on the Expected Moments Algorithm (EMA), improved confidence intervals and skew estimation should be incorporated into Bulletin 17B. Bill Kirby stated that the USGS is preparing a windows version of their Bulletin 17B program PEAKFQ, it will include EMA, and it will be available in a few months. Jeff Harris reported that USACE is developing a windows version of their Bulletin 17B program HEC-FFA, it will include EMA, and be available by the end of the 2005 fiscal year. Ken Bullard reported that the Bureau has a flood frequency program that also includes EMA and that John England (BOR) has done limited testing of the EMA method. It was agreed that these programs will provide a basis for future testing of the EMA method. A testing protocol or plan will be developed to determine if EMA is a significant improvement.

Joe Krolak suggested that there is a need to evaluate methods for estimating the more frequent floods (~ 2 year floods) for stream restoration, fish passage, and storm water management and to develop standard procedures for frequency analysis of coastal storm surges. Bill Kirby suggested that research is needed on ways to analyze flood events that include debris flows. Jerry Coffey suggested that a mixture of frequency distributions is the way to analyze combined coastal-riverine flood events and clear water-debris flow events. Contingent upon Subcommittee approval, the HFAWG agreed that a paper on "Research and Development Needs in Flood Frequency Analysis" should be prepared. Jery Stedinger and Will Thomas will coordinate the development of this paper and will get input from all HFAWG members. An outline of this paper will be presented to the Subcommittee at their April 2005 meeting. The full paper will identify and prioritize the important research that has been recently completed or that should be pursued; the paper will be published in a technical journal or presented at a technical conference.

The HFAWG agreed that if the EMA method and improved confidence limits and skew estimation are eventually implemented into Bulletin 17B, these changes are sufficiently different to justify development of a new Bulletin 17C.

Next Meeting

The next meeting of the HFAWG will be scheduled to be consistent with the July 2005 meeting of the Subcommittee on Hydrology.

Will Thomas
Michael Baker, Jr.
January 26, 2005

Attachment II. NOAA's Annual Stakeholder Forum

Email of 2/1/05 from Geoff Bonnin:

More detailed information on the Stakeholders Forum is now available at "http://www.spo.noaa.gov/dcforum2005.htm". In particular, there is an agenda and a registration form (registration is free). The relevant session is the one on Climate during the morning.

Thanks for your advocacy of updated precipitation frequency estimates.

Geoff

Geoff Bonnin wrote 1/26/05:
I've had my attempts to include updating precip frequency estimates across the nation rebuffed in NOAA's internal budget processes. I need your help in making NOAA aware of the urgency and significance of the need, particularly the size of the constituency and the impact on the economy.

NOAA's annual Stakeholder Forum (http://www.spo.noaa.gov) will be held on March 2, 2005 at the Marriott Wardman Park Hotel in Washington, DC. The forum will be hosted by NOAA's senior leadership and will be used to identify important societal needs where NOAA's programs might be more effective and responsive. Issues identified at this forum will be used to confirm the direction of NOAA's Strategic Plan and explore future opportunities. The forum will be interactive, consisting of facilitated breakout sessions organized around NOAA's four mission goals and several cross-cutting themes.

The idea that it should be done was accepted as part of the "Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond" mission goal but they chose not to fund.

I'm submitting your names as stakeholders to be invited to the Forum. I hope you can make time to attend and make the case.

Let me know. - Geoff

Attachment III. G. Douglas Glysson's Message of 2/1/05 Relevant to SOH's April 12, 2005 Meeting

I wanted to get this information out to you so you can forward it on to all of your committee and subcommittee members. For the SOH, SOS, and TC meeting, I have listed times; let me know if these are not what you want.

- The schedule for the meetings.

Tuesday, April 12
8:30 AM to noon - Subcommittee on Hydrology
1:00 - 4:30 PM - Subcommittee on Sedimentation

Wednesday, April 13
Joint planning session meeting - see below

Thursday, April 14 and Friday April, 15

FISP Technical Committee, 8:30 AM to 4:30 PM on the 14th,
and 8:30 AM to noon on the 15th
(note: Sorry, due to Federal regulations, this meeting is not open
to Non-Federal employees)

- Hotel information

Silver Legacy - 407 N Virginia St., Reno, NV 89501
Tel: (775) 329-4777
The hotel has a complimentary Airport Shuttle. It begins at 6 am and continues every 1/2 hour until 12 midnight. It is on a first come first serve basis and you cannot make reservations.

- Sleeping Room Reservation Information

Everyone will need to call the Silver Legacy and make their own reservation. Call 1-800-687-8733, request group code FISC405. Rate is $63 (Federal Per Diem rate) plus $3 per night resort fee and tax (13.5%). Reservations must be made by March 18, 2005 in order to get the rate. I encourage everyone to stay at the hotel as we need the room count to make our block and not have to pay for meeting rooms. You can cancel your reservation up to 24 hours prior to arrival without penalty.

- Joint Planning Session

The meeting on Wednesday will be in three parts. We will all meet in the morning from 8:30 to 10:00 AM. The two separate conferences and the operations committee will meet on their own from about 10:00 AM to 2:30 PM (breaking on their own for lunch.) (each group will be free to do what they wish during this time, Paula and I will have some things we will need to have them do, but will inform the Chairs prior to us meeting in Reno so you can plan for it.) All the groups will get back together at 2:30 PM to report and work out the conference registration and other fee.

More on the joint agenda will be forwarded to you as we work it out. Everyone is invited to attend all or any of the meetings that week, with the exception of the TC meeting on Thursday and Friday. Federal employees whose agency/department is not represented on the TC will need to contact Bill Carey, Chair of the TC (Bill_Carey@blm.gov), to request permission to attend. Sorry, but Federal regulation prohibits non-federal employees from attending the meeting.

- Others

We will have coffee/danish/juice available in the mornings before the meetings start and sodas and cookies at the afternoon breaks.

We will have a short meeting in Doug's room on the evening of April 12 for all those who are there. He will send information out about the time and location when I get it. Please find out from your groups who all will be there Tuesday evening and let him know so he can plan accordingly.

Let us know if you have any questions.

Paula and Doug

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Attachment IV. Congressional Action on the USGS FY 2005 Budget

USGS_Report-01-2005

Attachment V. Message of 1/28/05 from the Under Secretary – NOAA Tsunami Update

MEMORANDUM TO: **NOAA Employees & Team Members**

FROM: **Conrad C. Lautenbacher, Jr.**
Vice Admiral, U.S. Navy (Ret.)
Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator

SUBJECT: **NOAA Tsunami Update**

I was pleased to take part in a January 14 press conference at which the Administration announced a plan to expand U.S. tsunami detection and warning capabilities as part of the Global Earth Observation System of Systems (GEOSS), the international effort to develop a comprehensive, sustained and integrated Earth observation system. The plan commits $37.5 million over the next two years. It will enable enhanced monitoring, detection, warning and communications designed to protect lives and property in the U.S. and a significant part of the world.

With this new investment, NOAA will deploy 32 new advanced technology Deep-ocean Assessment and Reporting of Tsunami (DART) buoys for a fully operational tsunami warning system by mid-2007. The new system will provide the United States with nearly 100 percent detection capability for a U.S. coastal tsunami, allowing response within minutes. The new system will also expand monitoring capabilities throughout the entire Pacific and Caribbean basins, providing tsunami warning for regions bordering half of the world's oceans.

The U.S. has led the GEOSS effort since 2003 when the G-8 called for establishing a global observation system. GEOSS now has 54 participating nations, including India, Indonesia and Thailand.

Also on January 14, I participated in an "Ask the White House" web chat about tsunamis. Below are excerpts that might answer questions you or your families may also have:

Please give me the background details of the warning system the US had before and the new

improvements now.

The current system consists of six deep-sea DART (Deep Ocean Assessment and Reporting of Tsunamis) buoys and other sensors in the Pacific Ocean and two warning centers in Alaska and Hawaii that monitor the system. The new system outlined today will see the installation of new observing systems in the Pacific, Caribbean/Atlantic to improve detection of tsunami events. NOAA will also expand its operational capability to provide accurate and timely warnings of tsunami events to the U.S. public and international partners. There will be expanded local and international efforts to improve preparedness and planning for tsunami events. NOAA will also invest in new research to improve understanding of tsunamis and research new observing technologies.

The upgrade system will include 32 new DART tsunami buoys and 38 new sea level monitoring/tide gauge stations. There will be 24/7 warning coverage at the Pacific and Alaska Tsunami Centers as well as upgrades to 20 seismometers used to monitor seismic events in tsunami prone areas. NOAA will also expand the Tsunami Ready program to improve community preparedness and begin Tsunami Inundation Mapping in the Caribbean/Atlantic/Gulf of Mexico and expand the current Pacific program.

Does NOAA track tsunamis? If so how was this one not caught?

The NOAA Tsunami Warning Program provides tsunami warnings for the West Coast of the U.S., Alaska, Hawaii, Guam, American Samoa, Insular States of Micronesia, and countries in the Pacific Basin. NOAA's Pacific Tsunami Warning Center in Hawaii is the operational center for the International Tsunami Warning System of the Pacific, comprised of 26 Member States around the Pacific Rim. The Center issues tsunami warnings for Pacific Basin teletsunamis (tsunamis that can cause damage far away from their source). If a seismic event occurs off the coast of Japan, Japan issues a local tsunami warning. It is the Pacific Center's responsibility to warn all participating Nations in the Pacific Basin if the Japanese tsunami will cause damage far away from its source.

The Indian Ocean is one of the areas without a warning system. Southeast Asia, the southwest Pacific, Central and South America, the Mediterranean, and the Caribbean have no regional tsunami warning centers. The United Nations Educational, Scientific and Cultural Organization (UNESCO)/Intergovernmental Oceanographic Commission has recognized these gaps and has a number of initiatives to address this hazard. These include recommendations to establish Regional Tsunami Warning Systems for those areas. This one was not caught because it happened in one of the areas lacking a warning system.

Do you think another tsunami will hit again soon?

When discussing tsunamis the question is not if one will occur, but when. We know what causes them and we know a great deal about how to track them and forecast their path. While we may not be able to control when mother earth decides to flex her incredible power, we can control our ability to warn citizens and keep them out of harms way and today we are answering that call.

The Tsunami Monitoring System we are proposing calls for the deployment of new deep-sea

DART buoys and other sensors. It also calls for improved availability of seismic sensor data and a robust research component to improve forecasting.

This is truly a multi-national effort with multi-national benefits. We have had a fantastic relationship with our partners in the Pacific for many years. We are looking forward to working with our friends along the Atlantic and the Caribbean as well and are excited about the prospect of being able to monitor half the world's oceans with this system.

The Tsunami Monitoring System is the perfect example of the power of integrated observations working together to make people safer.

If a tsunami were to hit the US, which coast would it most likely hit? How should we prepare?

Twenty-four tsunamis have caused damage in the United States and its territories during the last 204 years. Just since 1946, six tsunamis have killed more than 350 people and caused a half billion dollars of property damage in Hawaii, Alaska, and the West Coast. As a tsunami nears the coastline, it may rise to several feet or, in rare cases, tens of feet, and can cause great loss of life and property damage when it comes ashore. Tsunamis can travel upstream in coastal estuaries and rivers, with damaging waves extending farther inland than the immediate coast. A tsunami can occur during any season of the year and at any time, day or night.

You can learn whether tsunamis have occurred in your area by contacting your local emergency management office, National Weather Service office, or the American Red Cross. If you are in a tsunami risk area, learn how to protect yourself, your family, and your property.

The Pacific Ocean has the highest possibility of a tsunami, the Caribbean less so, and an Atlantic tsunami would be a very rare occurrence. All tsunamis are potentially dangerous, even though they may not damage every coastline they strike. Damaging tsunamis are very rare. Our coastlines are vulnerable, but tsunamis are infrequent. Understand the hazard and learn how to protect yourself, but don't let the threat of tsunamis ruin your enjoyment of the beach.

How is it possible to detect a tsunami? Underwater sensors? Even if we could detect it, how much good would it do?

We now have the capability to predict with certainty if a tsunami has been created and where it's headed and when it will hit. The relatively new technology developed by NOAA, the Deep Ocean Assessment and Reporting of Tsunamis buoys are the key, to this effort. They provide the critical data that allows us to read whether a tsunami has been generated by an earthquake and where it's headed.

We rely on a variety remote sensing devices including underwater sensors, floating data buoys and we are now discovering that radar data from orbiting environmental satellites may be able to provide information that could be useful for tsunami research.

As far as the future is concerned we need the following:

- Additional DART buoys and other sensors to provide more accurate/earlier detection along more of the US coast; monitor the Pacific, Atlantic, Caribbean and Gulf of Mexico.
- Improved availability of real-time seismic sensor data and upgraded infrastructure for better earthquake detection and warning including instrumentation in the Caribbean.
- Expanded research on seismic, tsunami processes to improve forecasting.
- Improved response capacity with enhanced emergency warning systems, community response plans and public education.

As with any natural hazard warning system, the more informed the public is the better are the chances for survival. Consequently public education will be a significant component of an effective warning system.

Is the United States working with other countries to help strengthen the warning system for the future occurrence of tsunamis?

Yes we are - in fact the United States is providing leadership in the Global Earth Observation System of Systems (GEOSS), the international effort of 56 participating nations, including India, Indonesia and Thailand, to develop a comprehensive, sustained and integrated Earth observation system.

In parallel and like the U.S. Strategic Plan, the GEOSS plan focuses around important societal benefit areas, including reduction of disaster, loss of life and property, and the protection and monitoring of the ocean resources.

The United States will work with its GEOSS partners and other international bodies to develop a global tsunami warning system. For more information on the U.S. involvement with GEOSS please visit http://www.noaa.gov and see Global Earth Observations.

I have heard that the current tsunami detection system can warn of an approaching storm around 15 minutes in advance. I live near the California coast so I was wondering what steps would be taken when a warning is received, given the limited time frame.

Part of the answer to this is to follow a series of common sense actions outlined by emergency management organizations like FEMA.

Find out if your home is in a danger area. Know the height of your street above sea level and the distance of your street from the coast. Evacuation orders may be based on these numbers.

Be familiar with the tsunami warning signs. Because tsunamis can be caused by an underwater disturbance or an earthquake, people living along the coast should consider an earthquake or a sizable ground rumbling as a warning signal. A noticeable rapid rise or fall in coastal waters is also a sign that a tsunami is approaching. Make sure all family members know how to respond to a tsunami.

Make evacuation plans. Pick an inland location that is elevated. After an earthquake or other natural disaster, roads in and out of the vicinity may be blocked, so pick more than one evacuation route.

Develop an emergency communication plan. In case family members are separated from one another during a tsunami (a real possibility during the day when adults are at work and children are at school), have a plan for getting back together.

Ask an out-of-state relative or friend to serve as the "family contact." After a disaster, often it's easier to call long distance. Make sure everyone knows the name, address, and phone number of the contact person.

Contact your local emergency management office or American Red Cross chapter for more information on tsunamis.

Listen to a radio or television to get the latest emergency information, and be ready to evacuate if asked to do so.

If you hear an official tsunami warning or detect signs of a tsunami, evacuate at once. Climb to higher ground. A tsunami warning is issued when authorities are certain that a tsunami threat exists.

Stay away from the beach. Never go down to the beach to watch a tsunami come in. Return home only after authorities advise it is safe to do so.

A tsunami is a series of waves. Do not assume that one wave means that the danger over. The next wave may be larger than the first one so stay out of the area.

The NOAA National Weather Service operates a Tsunami Ready Community Program. It's an initiative that promotes tsunami hazard preparedness as an active collaboration among Federal, state and local emergency management agencies, the public, and the NOAA tsunami warning system.

This collaboration supports better and more consistent tsunami awareness and mitigation efforts among communities at risk. The main goal is improvement of public safety during tsunami emergencies.

The contact for information on becoming a Tsunami Ready for communities in California, Oregon, Washington, British Columbia, and Alaska is the NOAA West Coast & Alaska Tsunami Warning Center in Palmer, Alaska. http://www.prh.noaa.gov/ptwc

You can also contact your local NOAA National Weather Forecast office.

I've heard satellites can help detect bad weather patterns like tsunamis. Is this true? Even if they can, would they have been able to detect the earthquake that caused the last one?

Satellites are used in a limited way to gauge the level of the ocean, but tsunami's are waves that move at the floor of the ocean, along the sea bottom. The best observation system available today is the deep-sea DART (Deep Ocean Assessment and Reporting of Tsunamis) buoys developed by NOAA. This technology has only been operational for a few years and it's being upgraded and improved to provide more precise and faster detection and warning. Earthquake detection really relies on data provided from a global and national network of seismic stations operated by the U.S. Geological Survey, National Science Foundation, NOAA and a score of academic and international organizations. This information is used with that gathered by DART buoys to predict when a tsunami is triggered and where it may travel.

Recently after reviewing data from four Earth-orbiting radar satellites, NOAA scientists discovered they were able to measure the height of the devastating tsunami that erupted in the Indian Ocean. At this time we are not able to use this data in real time to supplement the forecasts of tsunamis, however, the ability to make depth surveys from space may lead to improvements in the models that forecast the hazardous effects of tsunamis.
